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Dimensions of Goals and Beliefs Among Adolescent Athletes With Physical Disabilities

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This study examined the existence and nature of dispositional goal orientations and perceived reasons for sport success among adolescent disabled athletes. Also, the interdependence between personal goals and views about the determinants of sport achievement was determined. Fifty-nine athletes with physical disabilities completed the 13-item Task and Ego Orientation in Sport Questionnaire specific to wheelchair basketball and a 21-item questionnaire concerning beliefs about the causes of sport success. Factor analyses revealed two distinct goal-belief dimensions. The first dimension indicated that task orientation was associated with the views that practice, exerted effort, and external factors lead to success. The second dimension suggested that ego orientation was coupled with the beliefs that ability, chance, taking an illegal advantage, or all three result in accomplishment in sport. The present findings are contrasted with previous classroom research and studies of able-bodied sport participants, and their implications for the understanding of motivation are provided.

Participation in competitive sport by athletes who are disabled has increased dramatically over the last decade. Moreover, there continues to be substantial growth of sport programs for the individual who is physically disabled (DePauw, 1984, 1988; Henschen, Horvat, & French, 1984). In contrast to this augmentation of athletic competition, limited work has been conducted to date on the psychological determinants of participation among this population (Goodling & Asken, 1987). Such research is paramount if we hope to conduct sound and effective psychological interventions to enhance involvement in sport for persons who are disabled (Hanrahan, Grove, & Lockwood, 1990).

Until recently, exercise and membership on a sport team were promoted as a therapeutic modality for the person with a disability. Sport for disabled participants, however, has become an arena for demonstrating and enhancing physical prowess and skill (Greenwood, Dziewaltowski, & French, 1990). Critical

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to maximizing sport participation for athletes with disabilities is the exigency to understand the values and perceptions that the individual holds about the sport experience. In essence, there is a need for conceptually based research that examines the underpinnings of motivation in terms of the subjective viewpoint of competitors who are disabled.

The majority of past work on the psychological aspects of sport, however, has focused on comparisons of personality characteristics between athletes with disabilities and their nondisabled counterparts (e.g., Henschen et al., 1984; Horvat, French, & Henschen, 1986). In general this research has been descriptive and not grounded in theoretical models of motivated behavior (White & Zientek, 1990).¹

One contemporary social cognitive approach to the study of motivation is goal perspective theory (Ames, 1984, 1992; Dweck & Leggett, 1988; Elliott & Dweck, 1988; Nicholls, 1984, 1989). This theory suggests that there are two goal perspectives operating in achievement-related situations that are associated with how people define success and judge their competence. One goal perspective, termed *task involvement*, means success is defined with respect to learning, mastering the task, or personal improvement. The second goal perspective, labeled *ego involvement*, means that subjective success stems from beating others and perceived competence is normatively referenced. In this case, satisfaction is felt when success is achieved via the demonstration of superior ability.

Goal perspective theory assumes that personal goals serve as an organizing principle influencing the meaning of an activity and individuals' responses to achievement experiences (Nicholls, 1989). Regardless of a person's level of perceived competence, it is expected that task involvement will lead to positive achievement striving. Ego involvement is predicted to result in negative achievement behaviors, especially in the case when questions about the adequacy of one's ability exist. The hypothesized relationships between goal perspectives and behavioral patterns have been supported in research in the academic and physical domains (see Nicholls, 1989, and Duda, 1989a, 1992, in press, for a review of this literature).

Recent studies have found that overall attitudes and beliefs in achievement-related situations are a function of individual differences in goal perspectives, or dispositional task and ego orientation. For example, in the athletic context, goal orientations have been found to relate to attitudes about sportsmanship and aggression (Duda, Olson, & Templin, 1991), the degree of interest and enjoyment experienced in sport (Duda, Chi, Newton, Walling, & Catley, in press), perceptions concerning the wider purposes of athletic involvement (Duda, 1989b), and motives for participation in sport (Papaioannou & Duda, 1992; White & Duda, in press). The latter relationships suggest that the ways individuals tend to define success in sport (i.e., their goal orientations) are compatible with their reasons for involvement in the activity. Previous research has identified relevant participation incentives among athletes with disabilities and has indicated that motives for

¹A notable exception is the work of Brasile and his colleagues (Brasile & Hedrick, 1991; Brasile, Kleiber, & Harnisch, 1991) on the analysis of participation incentives among athletes with disabilities. This line of research draws from Maehr and Braskamp's (1986) personal investment theory.

sport engagement are not strongly impacted by disability status (Brasile & Hedrick, 1991; Brasile, Kleiber, & Harnisch, 1991). An interesting direction for future research would entail attempts to link the goal perspective and participation motivation literature in the case of these sport participants.

In factor analytic studies, Nicholls and his colleagues have also found that an individual's goal orientation is linked to beliefs about the causes of success in school (Nicholls, Cheung, Lauer, & Patashnick, 1989; Nicholls, Cobb, Wood, Yackel, & Patashnick, 1990; Nicholls, Patashnick, & Nolen, 1985). Specifically, task orientation is associated with the beliefs that academic attainment stems from hard work, trying to understand information rather than memorize, and cooperating with one's classmates. Ego orientation, on the other hand, is coupled with the conviction that high levels of intelligence and superior academic ability lead to success in school. Nicholls (1989) contends that these goal-belief dimensions correspond to students' personal "theories" of scholastic achievement. Such theories convey what a student deems to be important in school and his or her perceptions of how school functions.

Research in the sport setting has demonstrated the existence of similar goal-belief dimensions in high school athletes (Duda & Nicholls, 1992), elite athletes (Duda & White, 1992), and youth (Duda, Fox, Biddle, & Armstrong, *in press*; Hom, Duda, & Miller, *in press*; Newton & Duda, 1992). Athletes who are task oriented are more likely to believe that sport success is primarily a result of hard work and motivation. Adversely, ego-oriented sport participants view success to be a product of external factors, taking an illegal advantage, and the possession of high athletic ability.

Although providing a wealth of information concerning the motivation of the nondisabled sport participant, the existence and motivational correlates of individual differences in goal perspectives have yet to be examined among athletes with disabilities. Therefore, the purpose of this study was twofold. First, the existence and nature of dispositional goal orientations and beliefs about the causes of success were examined among adolescent athletes with physical disabilities. Second, in the case of these athletes, this investigation determined the interdependence between goals and views about the determinants of sport achievement. In so doing, the present study was an attempt to provide insight into the young athletes' personal theories of sport success.

Method

Subjects

Subjects in this study were a convenience sample of 52 male (mean age = 15.6 \pm 3.3 years) and 7 female (mean age = 16.3 \pm 1.3 years) athletes with physical disabilities from the Province of Quebec, Canada. All participants in the study competed in wheelchair basketball and were at an organized competition. Subjects reported spending an average of 5 hr per week training for wheelchair basketball. The number of years the subjects had participated in organized wheelchair basketball ranged from 1 to 10 years, with the mean being 4-1/2 years. Seventy-eight percent of the respondents had been born with their disabilities. Using the National Wheelchair Basketball Association classification system, subjects reported being categorized in the following levels: 22 were in Level 1 (34.4%), 14 were in

Level II (21.8%), and 28 were in Level III (43.8%). All subjects volunteered to participate in the study.

Instruments

Subjects' goal orientations were assessed by the Task and Ego Orientation in Sport Questionnaire² (TEOSQ; Duda, 1989b). Subject were requested to think about when they felt successful in sport (in particular, wheelchair basketball) and then, utilizing 13 items probing task-involved (e.g., "I feel successful in sport when I do my very best") and ego-involved (e.g., "I feel successful in sport when the others can't do as well as me") criteria for subjective success, indicate their levels of agreement on a 5-point Likert-type scale (i.e., *strongly disagree* equated to 1 and *strongly agree* equated to 5). A mean score was calculated for each of the two TEOSQ subscales (i.e., sum of item responses/number of items). The range for a subject's level of task and ego orientation was 1 (low) to 5 (high). Evidence for the validity and reliability of the TEOSQ has been provided in previous work on adolescent and young adult nondisabled athletes (Duda, 1989b, 1992; Duda et al., 1991; Duda & White, 1992; White & Duda, in press).

To enable investigators to determine beliefs about the causes of success in athletes with physical disabilities, all subjects completed a 21-item questionnaire adapted from studies by Nicholls and his colleagues in the classroom (Nicholls et al., 1985, 1989) and Duda and her colleagues in sport (Duda & Nicholls, 1992; Duda & White, 1992). The Beliefs About the Causes of Success Questionnaire requested the athlete to reflect on the perceived reasons for success by responding to the question, What do you think is most likely to help athletes do well or succeed in sport? A 5-point Likert-type scale measured the subject's response with *strongly disagree* scored as 1 and *strongly agree* scored as 5. This measure has been found to be valid and reliable in past research on youth, adolescent, and young adult nondisabled sport participants (Duda & Nicholls, 1992; Duda & White, 1992; Duda et al., in press; Newton & Duda, 1992).

Procedure

Informed consent was received from all subjects, and subjects encountered no problems in completing either the TEOSQ or Beliefs About the Causes of Success Questionnaire. Responses to both instruments were anonymous.

Results

Validity and Reliability of TEOSQ

The TEOSQ's factor structure was examined (via principal components analysis with varimax and oblimin rotations) because this study entailed the foremost use of this instrument with a population with disabilities. Two factors emerged (namely task and ego orientation dimensions) with eigenvalues greater than one. Both rotations produced similar solutions, and the dimensions were found to be

²Copies of the TEOSQ and Beliefs About the Causes of Success Questionnaire (with scoring) are available from the second author.

Table 1
Factor Analysis (Varimax Rotation) of the Task and Ego Orientation
in Sport Questionnaire

| | Task Orientation | Ego Orientation |
|--|---------------------|--------------------|
| <i>I feel most successful in sport when . . .</i> | | |
| I learn a new aspect of technique and it makes me want to practice more. | .790 | -.130 |
| I learn something that is fun to do. | .584 | -.211 |
| I learn a new skill or technique by trying harder. | .682 | .043 |
| I work really hard. | .720 | .152 |
| Something I learn makes me want to go and practice more. | .663 | .052 |
| A skill I learn really feels right. | .455 | .290 |
| I do my very best. | .470 | .165 |
| I'm the only one who can do a particular skill. | -.102 | .677 |
| I can do better than others. | .099 | .740 |
| The others can't do as well as me. | -.000 | .300 |
| Others mess up and I don't. | .021 | .594 |
| I have the fastest time. | .210 | .680 |
| I'm the best. | .091 | .860 |

independent ($r = .57, p < .05$). Consequently, only the results of the varimax rotation are presented in Table 1. Only five of the six ego orientation items loaded on the ego factor (i.e., with a loading greater than .45), whereas all seven of the task orientation items loaded on the appropriate subscale.

The internal consistency of the task and ego orientation subscales was determined by calculation of Cronbach's coefficient alpha (Cronbach, 1951). Both the seven-item task orientation and six-item ego orientation subscales demonstrated acceptable internal reliability ($\alpha = .74$ and $.75$, respectively). Omitting Item 4 of the TEOSQ ("I feel most successful in sport when the others can't do as well as me") increased the coefficient alpha of the ego orientation subscale to $.78$. The observed alphas for the TEOSQ are similar to previous work on the assessment of participation motives among disabled athletes (Brasile et al., 1991). Consequently, responses to the original 13-item version of the TEOSQ were considered in subsequent analyses.

Validity and Reliability of Beliefs About Success Questionnaire

Principal components factor analyses (varimax and oblimin rotations) were performed on the responses of the subjects to the 21 items contained in the Beliefs About the Causes of Success Questionnaire. A factor weight of $.45$ was deemed necessary for an item to be considered to have loaded on a particular factor.

Table 2
Factor Analysis (Varimax Rotation) of the Beliefs About
the Causes of Success Questionnaire

| Motivation/Effort | Ability/Luck | Illegal Advantage | External Factors |
|---------------------------------------|----------------------------|--|--|
| <i>Athletes succeed if they . . .</i> | | | |
| Like improving (.77) | Get lucky breaks (.85) | Do blood doping (.85) | Have the right equipment (.80) |
| Like learning new skills (.77) | Are better athletes (.72) | Take performance-enhancing drugs (.82) | Think the coach believes in them (.74) |
| Do their best (.73) | Look good (.62) | Cheat (.76) | Like to practice (.47) |
| Train hard (.71) | Are natural athletes (.56) | | |
| Compete fairly (.68) | | | |
| Work hard (.67) | | | |
| Like to practice (.63) | | | |

Both rotations produced a similar solution. In general, the individual items clustered together in four interpretable factors (see Table 2). Factor 1 primarily included items reflecting the beliefs that hard work, training, and liking to improve lead to success. This factor was labeled Motivation/Effort. Reasons for success such as being a natural athlete, getting lucky breaks, and making oneself look better than one actually is loaded on Factor 2 (Ability/Luck). Factor 3 was comprised of perceived causes of athletic achievement such as performance-enhancement drug use and was named Illegal Advantage. External factors that are viewed as precursors to sport success (e.g., having the right equipment and the coach's perceptions) dominated Factor 4.

The internal reliability of the four beliefs about the causes of success subscales was tested via Cronbach's coefficient alpha (Cronbach, 1951). Both the Motivation/Effort and Illegal Advantage subscales were found to be high in internal consistency ($\alpha = .86$ and $.80$, respectively). The Ability/Luck and External Factors subscales demonstrated lower internal reliability ($\alpha = .67$ and $.67$, respectively). Drawing from previous research on the measurement of motivation-related variables among people with disabilities (Brasile et al., 1991), the investigators deemed the observed reliability of the four belief subscales to be acceptable. A mean scale score was determined for each of the four belief subscales.

Statistics for Goal and Belief Measures

The means and standard deviations for the two goal orientation and four belief variables are presented in Table 3. As can be seen, the present sample of wheel-

Table 3
**Means and Standard Deviations for TEOSQ and Beliefs About
the Causes of Success Questionnaire**

| | <i>M</i> | <i>SD</i> |
|-------------------------------------|----------|-----------|
| Goal Orientation | | |
| Task Orientation | 4.26 | .50 |
| Ego Orientation | 2.44 | .81 |
| Beliefs about the causes of success | | |
| Motivation/Effort | 1.87 | .80 |
| Ability/Luck | 3.20 | .77 |
| Illegal Advantage | 4.10 | 1.1 |
| External Factors | 2.73 | .60 |

chair basketball athletes were predominantly task oriented. This result is compatible with the research of Brasile (Brasile & Hedrick, 1991; Brasile et al., 1991), which found task incentives (such as participating in sport to improve one's ability and test oneself against personal standards) to be salient motives for participation among disabled participants. The present athletes also perceived success in wheelchair basketball to be primarily a function of motivation and effort.

Interdependence Between Goals and Beliefs

Consistent with previous research, principal components factor analyses (varimax and oblimin rotations) were conducted on the two goal orientation and four belief subscales. In each case, two orthogonal ($r = -.03$) goal-belief dimensions emerged (see Table 4). Factor 1 reflected a task-oriented theory of sport success. Specifically, a high task orientation was strongly linked to the belief that motivation/effort was the basis for subsequent sport achievement. Task orientation was also associated with a moderate emphasis on external factors as precursors to accomplishment in sport. The second dimension captured an ego-oriented theory of athletic success. The beliefs that possessing high ability, luck, and taking an illegal advantage were associated with ego orientation.

Discussion

There has been little work on the psychological dimensions of motivated behavior among athletic competitors with disabilities (Goodling & Asken, 1987). The present investigation was based on a social cognitive model of motivation. More specifically, this investigation was conceptually grounded in contemporary goal perspective theories of achievement motivation (Ames, 1992; Dweck & Leggett, 1988; Nicholls, 1989). Such a theoretical framework stresses an ecological approach to social perception; that is, emphasis is placed on individuals' subjective views and interpretations within particular social environments (McArthur & Baron, 1983). Moreover, it is assumed that people's achievement-related cogni-

Table 4
Factor Analysis (Varimax Rotation) of the Goal Orientation
and Beliefs About the Causes of Success Subscales

| Subscales | Task dimension | Ego dimension |
|--------------------------|-------------------|------------------|
| Motivation/Effort Belief | .844 | |
| Task Orientation | .724 | |
| External Factors Belief | .565 | |
| Ability/Luck Belief | | .723 |
| Illegal Advantage Belief | | .698 |
| Ego Orientation | | .552 |
| Eigenvalue | 1.72 | 1.46 |
| Pct variance | 28.7 | 24.3 |

Note: Only loadings $\geq .45$ are reported.

tions, behaviors, and the meaning of the same are intentional and aligned with their goal orientations in a conceptually consistent manner (Nicholls, 1989).

In this investigation, the goal orientations held by athletes with disabilities were examined. Variations in goal orientations reflect individual differences in the criteria underlying subjective success and the construal of perceived ability. With respect to a person's own phenomenology, his or her goal orientation provides insight into what is important to strive for in achievement settings such as sport. Results indicated that both task- and ego-oriented goal perspectives exist among athletes with disabilities. This finding adds to the work of Brasile (Brasile & Hedrick, 1991; Brasile et al., 1991), which revealed both ego- and task-oriented motives for involvement in sport by participants with disabilities. Further, the measure employed in this study to assess personal goals (i.e., the TEOSQ) demonstrated adequate psychometric properties in the context of sport and disabilities. Future research utilizing the TEOSQ with larger and more diverse samples of athletes is warranted.

Present findings also provide support for the valid and reliable assessment of beliefs about the causes of success among athletes with disabilities. Similar to what has been observed in sport for participants who are not disabled (e.g., Duda & White, 1992), success in wheelchair basketball was perceived to stem from a number of factors including trying hard and wanting to improve, being more able than others, employing illicit means such as blood doping, and environmental/task-related variables such as the quality of one's equipment. The determination of these athletes' views concerning the determinants of sport achievement allows us to better understand their perceptions of how sport operates (Nicholls, 1989).

According to Nicholls (1989), goals and beliefs about the causes of success are the critical components of personal theories of success. Congruent with this argument, past classroom and sport research has demonstrated that goals and beliefs are empirically associated in ways that make conceptual sense. In essence,

this previous work has shown that there are distinct task- and ego-oriented theories of achievement. In sport specifically, these divergent theories have been found to differentially relate to interest and investment in the activity (Duda et al., *in press*).

The present findings revealed two orthogonal theories of success in wheelchair basketball. Aligned with past academic and sport studies, a task goal-belief dimension emerged in which a focus on mastery-based success was linked with the view that the motivation to improve and exerted effort lead to success in this athletic activity.

In contrast to the findings based on nondisabled sport participants, the task goal-belief dimension that emerged indicated that task-oriented wheelchair basketball players felt that external factors (in particular, equipment and the influence of the coach's expectations for the player) also contribute to success. Given that this result repeatedly emerges in future work on athletes with disabilities, it will be important to ascertain how these athletes interpret such causes of success. Are external elements such as equipment and the coach viewed as self-determining (or personally controllable) among this group of athletic competitors? Why, in contrast to task-oriented nondisabled athletes, do athletes with disabilities consider such factors relevant to achievement? It might be the case that quality equipment (e.g., the wheelchair itself) and the positive expectations of coaches are realistically more pertinent to success in this domain of sport and consequently, perceiving such will not lead to motivational problems. With respect to the former factor, previous work has suggested that the use of good equipment is a legitimate (albeit not critical) reason for participation in sport among athletes with disabilities (Brasile et al., 1991; Weiss & Curtis, 1986).

Replicating previous work, an ego goal-belief dimension was also found. This dimension suggested that wheelchair basketball participants who think it is important to beat others (in terms of their personal definitions of success) also tend to believe that the possession of superior ability and/or deceptive and illegitimate tactics will get one ahead in their sport.

The identification of two divergent goal-belief dimensions among the athletes has important implications for the coach and/or sport psychologist working with this population. Athletes who are ego-oriented are likely to believe that success in sport is related to uncontrollable variables (such as being born a natural athlete or luck) and illicit performance-enhancement techniques, not to effort and practice. This personal theory of sport success, especially if associated with low perceived competence, may foster maladaptive responses such as giving up, cheating, or risking one's own health to secure victory. The adoption of a task theory of sport success, however, predominantly placed the perceived antecedents of accomplishment within the individual's personal determination. Such an outlook should relate to sustained involvement (Nicholls, 1989). Based on these findings, the role of the coach and/or sport psychologist would be to create a situational goal structure that is more conducive to assuming an adaptive "theory of success" (Ames, 1992; Seifriz, Duda, & Chi, 1992).

In sum, the findings of this investigation suggest that athletes with disabilities can be considered task- and/or ego-oriented in the athletic setting and that these goal orientations correspond to their opinions concerning the reasons for success in a meaningful fashion. The present study needs to be replicated with a larger sample of wheelchair basketball participants and among others who

are involved in different sports. In subsequent investigations, possible gender- and age-related differences in goals and beliefs should be considered (Brasile et al., 1991; Fung, 1992). Future research should also address the cognitive, affective, and behavioral correlates of a task versus ego theory of success among wheelchair athletes.

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